

IN THE CLAIMS:

Claim 1 (currently amended) In combination for providing at selective positions on a patient's skin signals representing the patient's parameters at these positions,

an electrode constructed to be attached to the patient's skin at one of the selective positions to provide signals indicative of the parameters on the patient's body at the one of the selective positions,

an amplifier having an input terminal with an impedance approaching infinity and providing at ~~[[the]]~~ an output terminal signals corresponding to the signals from the electrode to eliminate any noise resulting from movement of the patient, and

an output stage connected to the amplifier and constructed to reject noise and to pass signals at frequencies below a particular value.

Claim 2 (currently amended) In a combination as set forth in claim 1 wherein

a second electrode is constructed to be attached to the patient's skin at a position displaced from the first electrode and wherein a second amplifier corresponding to the first amplifier is connected to the second electrode and wherein

a common mode rejection is provided to the signals from the ~~electrode~~ electrodes to eliminate noise from the signals ~~[[from]]~~ provided by the ~~electrode amplifier~~ amplifiers.

Claim 3 (original) In a combination as set forth in claim 1 wherein

the input impedance of the amplifier is approximately  $10^{15}$  ohms.

Claim 4 (original) In a combination as set forth in claim 1 wherein

the impedance of the patient's skin is in a range to approximately 200 kilohms and wherein the electrode is attached to the patient's skin.

Claim 5 (original) In a combination as set forth in claim 2 wherein

the input impedance of the amplifier is approximately  $10^{15}$  ohms, and  
wherein

the impedance of the patient's skin is in a range to approximately 200  
kilohms, and wherein

the electrode is attached to the patient's skin.

Claim 6 (currently amended) In [[a]] combination for providing a signal at one of  
the selective positions on a patient's skin of the patient's parameters at the one of the  
selective positions,

an electrode constructed to be applied to the one of the selective positions  
of the patient's skin to provide a signal representative of the patient's parameters at  
[[these]] this selective ~~positions~~ position,

an amplifier connected to the electrode to amplify the ~~signals~~ signal at the  
electrode without producing noise resulting from movements of the patient, and

a low pass filter connected to the amplifier to provide an output in which  
any remaining noise is eliminated and signals in a particular frequency range are passed  
by the low pass filter,

the amplifier having characteristics of providing a high input impedance  
and a low output impedance.

Claim 7 (currently amended) In a combination as set forth in claim 6 wherein

a second electrode connected to the patient's skin provides a reference and  
wherein

the amplifier constitutes a differential amplifier for eliminating noise from the signals provided by the ~~electrode~~ electrodes.

Claim 8 (original) In a combination as set forth in claim 6 wherein

the amplifier includes a differential stage for eliminating noise from the signals provided by the electrode.

Claim 9 (original) In a combination as set forth in claim 6 wherein

the amplifier provides an input impedance approaching infinity.

Claim 10 (currently amended) In a combination as set forth in claim 6 wherein

~~the amplifier and the high pass filter are disposed on a printed circuit board and the output of the amplifier is isolated electrically~~ is introduced to [[from]] the high low pass filter ~~on the printed circuit board~~.

Claim 11 (currently amended) In a combination as set forth in claim 9 wherein

the ~~high low~~ pass filter limits the amplitude of the output from the ~~high low~~ pass filter to facilitate the operation of the amplifier in processing the ~~signals~~ signal and wherein

the amplifier has a low output impedance.

Claim 12 (currently amended) In a combination as set forth in claim 6 wherein

the amplifier provides an input impedance approaching infinity, and wherein

~~the amplifier and the high pass filter are disposed on a printed circuit board and the output from the amplifier is introduced to isolated electrically from the high low~~ pass filter ~~on the printed circuit board~~, and wherein

the ~~high~~ low pass filter limits the amplitude of the output from the ~~high~~ low pass filter to facilitate the operation of the amplifier in processing the signals and wherein

the amplifier has a low output impedance.

Claim 13 (currently amended) In combination for providing at selective positions on a patient's skin signals representing the patient's parameters at these positions,

a first electrode constructed to be attached to the patient's skin at a first one of the selective positions to provide signals representing the patient's parameters at ~~these positions~~ this position,

a second electrode constructed to be attached to the patient's skin at a second one of the selective positions different from the ~~selective positions~~ first position to provide reference signals,

a pair of amplifiers respectively connected to the first and second electrodes and having properties of providing a high input impedance approaching infinity and having a low output impedance to eliminate noise resulting from movements of the patient, and

a ~~high~~ low pass filter connected to the amplifiers for eliminating noise and for passing signals at relatively ~~high~~ low frequencies.

Claim 14 (currently amended) In a combination as set forth in claim 13 wherein

the amplifiers are constructed to obtain the difference between the signals on the first and second electrodes and are provided without substantially identical constructions.

Claim 15 (currently amended) In a combination as set forth in claim 13 wherein  
the amplifiers provide a differential relationship for eliminating noise  
resulting from movements of the patient.

Claim 16 (currently amended) In a combination as set forth in claim ~~[[13]]~~ 15  
wherein

the combination of the patient's skin and each individual one of the  
electrodes has an impedance to approximately 200 kilohms and each of the ~~amplifier~~  
amplifiers has an input impedance of approximately  $10^{15}$  ohms and substantially identical  
construction relative to the other amplifier to eliminate noise resulting from the patient's  
movements.

Claim 17 (currently amended) In a combination as set forth in claim 13 wherein  
the combination of the patient's skin and each individual one of the  
electrodes has an impedance to approximately 200 kilohms and each of the amplifiers ~~the~~  
~~amplifier~~ has an input impedance of approximately  $10^{15}$  ohms and wherein  
the amplifiers have a substantially identical construction.

Claim 18 (original) In a combination as set forth in claim 13 wherein  
each of the amplifiers has an output impedance of approximately fifty (50)  
ohms to seventy-five (75) ohms.

Claim 19 (currently amended) In a combination as set forth in claim 13 wherein  
the amplifiers are constructed to obtain the difference between the signals  
on the first and second electrodes and wherein  
the amplifiers provide a differential relationship for eliminating noise and  
for eliminating signals resulting from movements of the patient.

Claim 20 (currently amended) In a combination as set forth in claim 19 wherein

the combination of the patient's skin and each individual one of the electrodes has an impedance to approximately 200 kilohms and each of the amplifier amplifiers has an input impedance of approximately  $10^{15}$  ohms and wherein

each of the amplifiers has an output impedance of approximately fifty (50) ohms to seventy five (75) ohms and wherein

the amplifiers have substantially identical constructions.

Claim 21 (currently amended) In combination for providing at selective positions on a patient's skin ~~[[first]]~~ signals representing the patient's parameters at these positions,

a first electrode coupled to the patient's skin at one of the selective positions for producing first signals representing the patient's ~~parameter~~ parameters at this position,

a second electrode coupled to the patient's skin at a position other than the one of the selective position positions for producing reference signals,

a first amplifier coupled to the first electrode for amplifying the first signals, the first amplifier having an input impedance approaching infinity, and

a second amplifier coupled to the second electrode for amplifying the second signals, the second amplifier having an input impedance approaching infinity, ~~[[and]]~~

the first and second amplifiers being connected in a differential circuit ~~connected~~ to the first and second ~~amplifiers~~ electrodes to eliminate noise even during movements of the patient and to produce an output signal representing the difference between the first and ~~second~~ reference signals.

Claim 22 (currently amended) In a combination as set forth in claim 21 wherein  
the first and second amplifiers have substantially identical characteristics  
and the first and second electrodes have substantially identical characteristics.

Claim 23 (currently amended) In a combination as set forth in claim 21 wherein  
each of the amplifiers has an input impedance of approximately  $10^{15}$  ohms  
and ~~having~~ has an output impedance of approximately 50 ohms to 75 ohms.

Claim 24 (currently amended) In a combination as set forth in claim ~~[[27]]~~ 22  
wherein each of the first and second amplifiers has a low output impedance with ~~[[have]]~~  
substantially identical characteristics.

Claim 25 (currently amended) In combination for providing at selective positions  
on a patient's skin ~~[[first]]~~ signals representing the patient's parameters at these positions,

~~[[an]]~~ a first electrode coupled to the patient's skin at one of the selective  
positions for producing ~~second~~ signals representing the patient's parameters at this  
position, ~~[[and]]~~

a second electrode connected to the patient's skin at a position displaced  
from the one of the selective positions for producing reference signals,

a low pass filter differentially connected to the first and second electrodes  
for producing low frequency signals representing the difference between the signals on  
the electrodes, and

~~an amplifier connected to the first electrode for amplifying the signals from  
the electrode, the amplifier having an input impedance approaching infinity~~

a pair of substantially identical amplifiers differentially connected to the low pass filter for eliminating any noise provided in the low pass filter from movement of the patient, each of the amplifiers having an input impedance approaching infinity.

Claim 26 (currently amended) In a combination as set forth in claim 25 wherein each of the ~~amplifier~~ amplifiers has an input impedance of approximately  $10^{15}$  ohms.

Claim 27 (currently amended) In a combination as set forth in claim 25 wherein each of the ~~amplifier~~ amplifiers has an output impedance having a low value considerably less than the input impedance of the amplifier.

Claim 28 (currently amended) In a combination as set forth in claim 26 wherein each of the ~~amplifier~~ amplifiers has an output impedance of approximately 50 ohms to 75 ohms.

Claim 29 (currently amended) In a combination as set forth in claim 26, ~~a low pass filter coupled to the output of the amplifier to receive the signals from the amplifier, and~~

~~a printed circuit board for holding the amplifier and the low pass filter with the amplifier in physically and electrically displaced relationship to the low pass filter.~~

the pair of amplifiers including a pair of output terminals providing the output from the amplifier, and

a second low pass filter differentially connected to the output terminals of the amplifiers for passing the low frequency signals representing the difference between the signals on the output terminals of the amplifiers.



Claim 30 (currently amended) In a combination as set forth in claim [[29]] 25,

~~a second low pass filter connected between the electrode and the input to the amplifier to pass signals below a particular frequency.~~

the electrodes having identical characteristics, and

the amplifiers having identical characteristics.

Claim 31 (currently amended) In a combination as set forth in claim [[29]] 25  
wherein

~~the differential circuit is a first differential circuit and is connected to the outputs of the amplifiers to operate as a low pass filter for passing signals below a particular frequency and to eliminate noise and wherein~~

~~a second differential circuit is connected between the electrode and the amplifiers to operate as a low pass filter for passing signals below the particular frequency and to eliminate noise.~~

the low pass filter is formed from a plurality of capacitors differentially connected to the pair of amplifiers.

Claim 32 (currently amended) In a combination as set forth in claim [[1]] 25  
wherein

~~the amplifier has an input and an output and wherein~~

~~the output stage is connected to the output of the amplifier and wherein~~

~~a second stage is connected between the electrode and the input of the amplifier and is constructed to reject noise and to pass signals at frequencies below the particular value.~~

the amplifiers include a pair of transistors having terminals respectively connected to the first and second electrodes.

Claim 33 (original) In a combination as set forth in claim 6 wherein

the amplifier has an input and an output and wherein

the low pass filter is a first low pass filter and is connected to the output of the amplifier to provide an output in which noise is eliminated and signals in the particular frequency range are passed by the low pass filter and wherein

a second low pass filter is connected between the electrode and the input of the amplifier to eliminate noise and to pass signals in the particular frequency range.

Claim 34 (currently amended) In a combination as set forth in claim ~~[[6]]~~ 33 wherein

the first low pass filter operates on a differential basis and wherein

the second low pass filter operates on a differential basis.

Claim 35 (currently amended) In combination for providing at selective positions on a patient's skin signals representing the patient's parameters at these positions,

an electrode constructed to be attached to the patient's skin at an individual one of the selective positions to provide signals indicative of the parameters on the patient's body at the selective ~~positions~~ position; and

an amplifier constructed to pass the signals from the electrode without loss in signal strength and without any change in signal characteristics.

Claim 36 (previously submitted) In a combination as set forth in claim 35,  
a circuit connected to the amplifier to eliminate noise in the signals from  
the amplifier.

Claim 37 (previously submitted) In a combination as set forth in claim 36 wherein  
the circuit operates as a low pass filter to eliminate noise.

Claim 38 (currently amended) In combination for providing at selective positions  
on a patient's skin signals representing the patient's parameters at these positions,

a pair of electrodes constructed to be attached to the patient's skin at a  
spaced pair of selective positions to provide signals indicative of the parameters at the  
spaced pair of the selective positions, and

a pair of amplifiers each constructed to be connected to an individual one of  
the electrodes to pass signals from the individual one of the electrodes and to provide  
output signals representing the difference between the signals on the electrodes without  
loss in the strength of the signals on the electrodes and without changes in the  
characteristics of the differences of the signals between the electrodes, the amplifiers  
being provided with characteristics, and being differentially connected to each other, to  
eliminate noise resulting from movements of the patient during the production of the  
signals in the electrodes.

Claim 39 (currently amended) In a combination as set forth in claim 38,

[[A]] a differential circuit connected to the amplifiers to further eliminate  
noise in the ~~output~~ signals representing the difference between the signals on the  
electrodes.

Claim 40 (currently amended) In a combination as set forth in claim 39 wherein

the differential circuit operates as a low pass filter to further eliminate noise and  
wherein the electrodes have identical characteristics and wherein the amplifiers have  
identical characteristics.